REMARKS

Present Status of the Application

The Office Action rejected claims 1-3, 5, 7-14, 16 and 18-23 under 35 U.S.C. 103(a), as being unpatentable over the applicant's admitted prior art (hereafter AAPA) in view of Kanaya et al. (U.S. 6,025,217; hereafter Kanaya) and Havemann et al (U.S. 5,747,880; hereafter Havemann) and further in view of Campion et al. (U.S. 6,201,917; hereafter Campion). The Office Action also rejected claims 4 and 15 under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Kanaya, Havemann and Campion and further in view of Haven et al. (U.S. 6,380,670; hereafter Haven). The Office Action rejected claims 1-3, 5, 7-14, 16 and 18-23 under 35 U.S.C. 103(a), as being unpatentable over AAPA in view of Kanaya and Numata (U.S. 5,519,250) and further in view of Campion. Applicant deems that claims 1-5, 7-16 and 18-23 have already clearly defined the invention and been distinguishable over the cited arts. Hence, the reconsideration of those claims is respectfully requested.

Discussion of Office Action Rejections

The Office Action rejected claims 1-3, 5, 7-14, 16 and 18-23 under 35 U.S.C. 103(a), as being unpatentable over the AAPA in view of Kanaya and Havemann and further in view of Campion.

Applicant respectfully submits that the AAPA in view of Kanaya and Havemann and further in view of Campion is legally deficient to render claims 1, 10 and 23

unpatentable because of the reasons recited below.

In the present invention, since the porous material layer 202c/302b is made of silicon oxide/aluminum oxide alloy, the **thermal conductivity constant** of the porous material layer 202c/302b is much lower than that of the silicon oxide layer (paragraph [0026] and paragraph [0035]). Because of the low-thermal-conductive porous layer, which is directly in contact with the later formed amorphous layer and is made of silicon oxide/aluminum oxide alloy, the grain size of the polysilicon layer transformed from the amorphous layer is relatively large (paragraph [0038]).

However, both the AAPA and Kanaya fail to teach or suggest that the insulating film 7 is a porous material layer made of silicon oxide/aluminum oxide alloy. In addition, although Havemann mentions that porous dielectric possess disadvantages including the decreasing of the thermal conductivity (col. 2, lines 51-53), Havemann fails to suggest or teach that the porous material layer made of silicon oxide/aluminum oxide provides even lower thermal conductivity since Havemann focuses on finding the method to solve the low-thermal-conductivity problem caused by using the porous dielectric (col. 2, lines 51-61).

Further, the Office Action asserted that Campion teaches the use of aluminum oxide in the silicon oxide for strengthening the mechanical strength. However, in Campion's application, the alumina-silicon grain mixture is used to form the peripheral zone 25 of the built-up zone 23 of the optical fiber (col. 5, lines 17-39). It is understood that peripheral zone 25 formed from the alumina-silicon grain mixture provides much more mechanical strength to protect the material layers enclosed by itself. Nevertheless,

Campion never mentions that an amorphous layer is further formed directly on the peripheral zone 25. Also, Campion never disclose that the alumina-silicon grain mixture can provide much lower thermal conductivity while a polysilicon layer, transformed from an amorphous layer formed on a material layer, is made of alumina-silicon grain mixture.

Hence, skilled artisan would not imagine the use of alumina-silicon grain mixture which provides **high mechanical strength** in the formation of porous material layer having **relatively low thermal conductivity** since there is no motivation for the combination of the AAPA, Kanaya, Havemann and Campion. That is, people skilled in the art would not combine AAPA, Kanaya, Havemann and Campion by inserting a porous material layer made of alumina-silicon grain mixture between the amorphous layer and the barrier layer.

Hence, Applicant respectfully submits that the AAPA in view of Kanaya and Havemann and further in view of Campion fails to render claims 1, 10 and 23 unpatentable. Claims 2-3, 5, 7-9, 11-14, 16 and 18-22, which depend from claims 1, 10 and 23 respectively, are also patentable over the AAPA in view of Kanaya and Havemann and further in view of Campion, at least because of their dependency from an allowable base claim. Applicant respectfully asserts that these claims are in condition for allowance. Thus, reconsideration and withdrawal of this rejection are respectively requested.

The Office Action also rejected claims 4 and 15 under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Kanaya, Havemann and Campion and further in view

of Haven.

Since claims 4 and 15 are dependent claims which further define the invention recited in claims 1 and 10, Applicant respectfully asserts that these claims also are in condition for allowance according to the same reasons as discussed above for the rejection 103. Thus, reconsideration and withdrawal of this rejection are respectively requested.

The Office Action rejected claims 1-3, 5, 7-14, 16 and 18-23 under 35 U.S.C. 103(a), as being unpatentable over AAPA in view of Kanaya and Numata and further in view of Campion.

Applicant respectfully submits that AAPA in view of Kanaya and Numata and further in view of Campion is legally deficient to render claims 1, 10 and 23 unpatentable because of the reasons recited below.

With regard to AAPA, Kanaya and Campion, Applicant respectfully submits that these claims patently define over the prior art for at least the same reasons as discussed above for the 103 rejection. As for Numata, Numata also fails to teach or suggest that the porous material is made of silica aerogel mixing with the alumina so as to provide much lower thermal conductivity.

Therefore, skilled artisan would not imagine the use of alumina-silicon grain mixture which provides **high mechanical strength** in the formation of porous material layer having **relatively low thermal conductivity** since there is no motivation for the combination of the AAPA, Kanaya, Numata and Campion. That is, people skilled in the

art would not combine AAPA, Kanaya, Numata and Campion by inserting a porous material layer made of alumina-silicon grain mixture between the amorphous layer and the barrier layer.

Hence, Applicant respectfully submits that the AAPA in view of Kanaya and Numata and further in view of Campion fails to render claims 1, 10 and 23 unpatentable. Claims 2-3, 5, 7-9, 11-14, 16 and 18-22, which depend from claims 1, 10 and 23, are also patentable over the AAPA in view of Kanaya and Numata and further in view of Campion, at least because of their dependency from an allowable base claim. Applicant respectfully asserts that these claims are in condition for allowance. Thus, reconsideration and withdrawal of this rejection are respectively requested.

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CONCLUSION

For at least the foregoing reasons, it is believed that the pending claims 1-3, 5, 7-14, 16 and 18-23 are in proper condition for allowance. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

Respectfully submitted,

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